

# Engineering students race first 3-D printed boat in Milk Carton Derby

July 23 2012, By Hannah Hickey

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(Phys.org) -- University of Washington mechanical engineering students braved uncharted waters as they paddled to the finish line at the annual Milk Carton Derby at Green Lake in Seattle in what they believe is the world's first boat made using a 3-D printer.

The new UW student club Washington Open Object Fabricators (or WOOF) built the boat as its inaugural project. The club's [blog](#) describes the undergraduate members' 10-week quest to make equipment and develop techniques to be first to print a seaworthy craft.

Judges weren't sure how to qualify the UW entry, which used recycled milk cartons for its buoyancy but not quite in the way that contest organizers had envisioned. In the end, the boat raced as an unofficial entry in the adult open category, where it placed second.

Faculty adviser Mark Ganter, professor of mechanical engineering, experiments with unconventional methods and ingredients for 3-D printing (including ceramics, glass and cookie dough) in the UW's Open3DP Lab, which he operates with colleague Duane Storti, associate professor of mechanical engineering.

Printing a boat "is a historic first," Ganter said. Two other UW groups have tried and failed at the same task, he added, and making it out of recycled milk jugs is an added challenge.

"Frankly, milk jug material is an awful material to work with," he said. "It shrinks, it curls, it doesn't want to stick to itself. Overcoming all those parts of the problem was part of the achievement."

Ganter teaches a course in Computer-Aided Technology that uses his lab's 3-D printers. The student club was formed in the spring by three former students: Weeks; Matt Rogge, club president; and Adam Commons, vice-president. It has now grown to about 20 active members.

Some experts predict 3-D printers will revolutionize manufacturing by allowing people to buy a design online and then immediately print out a physical object. The process takes instructions from a computer to print a solid object in layers, using a machine similar to an inkjet printer. High-end machines have long been used in manufacturing, but lower-cost versions are increasingly being used by hobbyists and educational groups.

The UW club hopes to continue printing using recycled materials,

building large-scale printers and developing low-cost 3-D printing techniques.

"I hope that the club gets printers in the hands of as many students as possible," Rogge said. "People are intimidated because they think 3-D printing is complicated, or expensive, and it really doesn't have to be."

Provided by University of Washington

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